



## TECHNICAL DATA

## QUICK RESPONSE DRY PENDENT SPRINKLERS

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

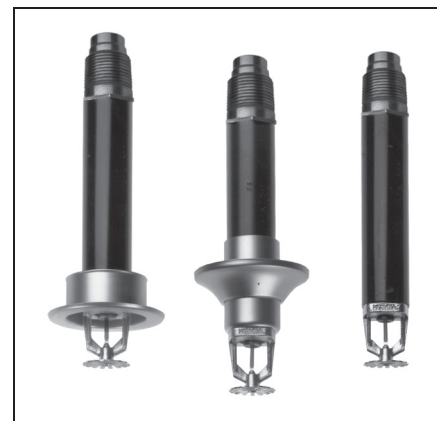
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

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### 1. DESCRIPTION

Viking Quick Response Dry Pendent Sprinklers are thermosensitive spray sprinklers suitable for use in areas subject to freezing. The sprinklers are designed for dry systems and preaction systems where it is necessary to prevent water or condensation from entering the drop nipple before sprinkler operation. They may also be installed in spaces subject to freezing and supplied from a wet system in an adjacent heated area.

Viking Quick Response Dry Pendent Sprinklers are available in various finishes and temperature ratings to meet design requirements. The special Polyester and Electroless Nickel PTFE (ENT) coatings have been investigated for installation in corrosive atmospheres and are listed/approved as corrosion resistant as indicated in the Approval Charts. (Note: FM Global has no approval classification for Polyester coatings as corrosion resistant.)



### 2. LISTINGS AND APPROVALS



**cULus Listed:** Category VNIV



**FM Approved:** Classes 2013 and 2015

**NYC Approved:** MEA 89-92-E Volume 15

Refer to Approval Chart 1 and Design Criteria on page 105d for cULus Listing requirements, and refer to Approval Chart 2 and Design Criteria on page 105e for FM Approval requirements that must be followed.



**WARNING:** Cancer and Reproductive Harm-  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

### 3. TECHNICAL DATA

#### Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar)

Maximum Working Pressure: 175 psi (12 bar).

Factory tested hydrostatically to 500 psi (34.5 bar)

Thread size: 1" NPT or 25 mm BSP

Nominal K-Factor: 5.6 U.S. (80.6 metric\*) for all listed and approved lengths.

\* Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Covered by the following U.S. Patents: 8,636,075 and 10,220,231

#### Material Standards:

Frame Casting: Brass UNS-C84400

Deflector: Brass UNS-C26000

Bulb: Glass, nominal 3 mm diameter

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape

Compression Screw: Brass UNS-C36000

Pip Cap: Brass UNS-C31400 or UNS-C31600

Pip Cap Adapter: Brass UNS-C36000

Orifice: Copper UNS-C22000 or UNS-C11000

Tube: ERW Hydraulic Steel Tube

Support (Internal): Stainless Steel UNS-S30400

Barrel: Steel Pipe UNS-G10260, Electrodeposited Epoxy Base finish

Barrel End and Threads: QM Brass

Sleeve (for Adjustable Standard style only): Brass UNS-C26000 or UNS-C26800

#### Escutcheon Materials:

Adjustable Standard Dry Escutcheons: Brass UNS-C26000 or UNS-C26800

Recessed Dry Escutcheons: Cold Rolled Steel UNS-G10080

ENT Coated Adjustable and Recessed Escutcheons: Stainless Steel UNS-S30400

**Ordering Information:** (Also refer to the current Viking price list.)



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Order Quick Response Dry Pendent Sprinklers by first adding the appropriate suffix for the sprinkler finish, the appropriate suffix for the temperature rating, and then the suffix for the length ("A" dimension) to sprinkler base part number. Order in a specific length noted as the "A" dimension. The "A" dimension is the distance from the face of the fitting (tee) to the desired finished surface of the ceiling.

These sprinklers are listed and approved in lengths from 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm) for the adjustable standard style, 3" to 47" (76.2 mm to 1,194 mm) for the plain barrel style, and 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm) for the adjustable recessed style. Lengths exceeding the standard lengths are available, with no approvals, on a "made-to-order" basis: Recessed Dry Pendent up to 65-1/2" (1,664 mm). Adjustable Standard Dry Pendent up to 63-1/2" (1,613 mm). Plain Barrel Dry Pendent up to 65" (1,651 mm). Contact the manufacturer for more information.

Finish Suffix: Brass = A, Chrome = F, White Polyester = M-W, and ENT = JN

Temperature Suffix: 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E, 286 °F (141 °C) = G

For example, sprinkler VK176 with a Chrome finish and a 155 °F (68 °C) temperature rating, and "A" length of 10" = Part No. 08383UFB10.

**Available Finishes And Temperature Ratings:** Refer to Table 1.

**Accessories:** (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

### Sprinkler Wrenches:

A. Standard Wrench: Part No. 07297W/B (available since 1991)

B. Wrench for recessed sprinklers: Part No. 07565W/B\*\*  
(available since 1991)

\*\*A 1/2" ratchet is required (not available from Viking).

**Sprinkler Guard:** Chrome, with no listings or approvals, for installation on dry pendent sprinklers made after May 1994 only (Part No. 08954).

### Replacement Escutcheons:

A. Adjustable Standard Dry Escutcheon: Base Part No. 07741

B. Recessed Dry Escutcheon Cup: Base Part No. 05459A

## 4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

## 5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the internal parts to open the waterway. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

## 6. INSPECTIONS, TESTS & MAINTENANCE

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

## 7. AVAILABILITY

The Viking Quick Response Dry Pendent Sprinkler is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

## 8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

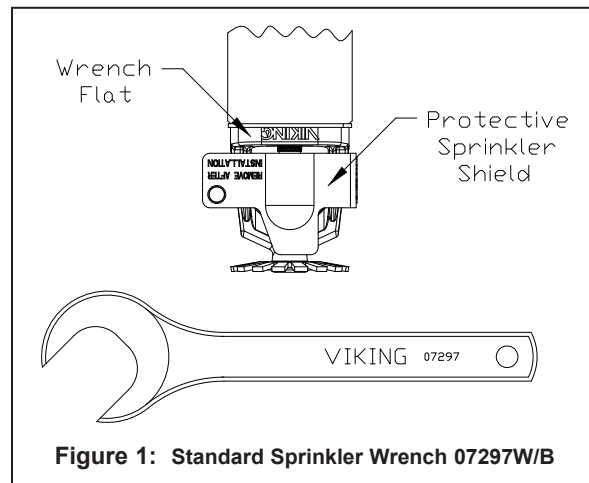


Figure 1: Standard Sprinkler Wrench 07297W/B

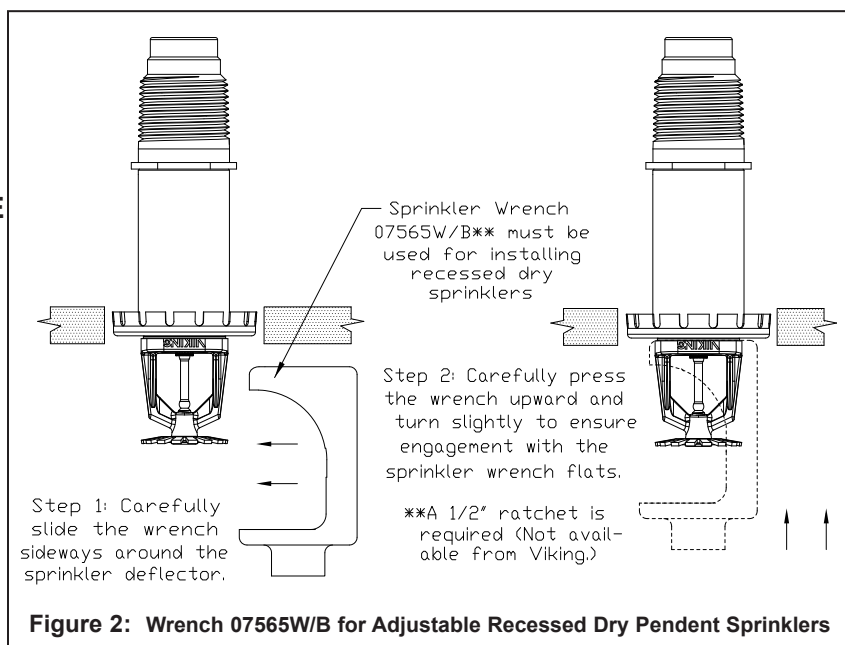


Figure 2: Wrench 07565W/B for Adjustable Recessed Dry Pendent Sprinklers



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TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

| Sprinkler Temperature Classification | Sprinkler Nominal Temperature Rating <sup>1</sup> | Maximum Ambient Ceiling Temperature <sup>2</sup> | Bulb Color |
|--------------------------------------|---|--|------------|
| Ordinary                             | 155 °F (68 °C)                                    | 100 °F (38 °C)                                   | Red        |
| Intermediate                         | 175 °F (79 °C)                                    | 150 °F (65 °C)                                   | Yellow     |
| Intermediate                         | 200 °F (93 °C)                                    | 150 °F (65 °C)                                   | Green      |
| High                                 | 286 °F (141 °C)                                   | 225 °F (107 °C)                                  | Blue       |

**Sprinkler Finishes:** Brass, Chrome, White Polyester, and ENT

**Corrosion-Resistant Coating<sup>3,4</sup>:** White Polyester and ENT in all temperature ratings

Footnotes

- <sup>1</sup> The sprinkler temperature rating is stamped on the deflector.
- <sup>2</sup> Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
- <sup>3</sup> The corrosion-resistant Polyester and ENT coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Charts. These tests cannot and do not represent all possible corrosive environments. Note: These coatings are NOT corrosion proof. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. Polyester and ENT coatings are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester and ENT coatings.
- <sup>4</sup> When installed in some corrosive environments, the Polyester finish may change color. This natural discoloration over time is not in itself an indication of corrosion and should not be treated as such. All sprinklers installed in corrosive environments should be replaced or tested as described in NFPA 25 on a more frequent basis.

For "A" Dimension: 1. Determine the distance from the face of the tee to the finished ceiling.  
 2. Round to the nearest 1/2" (12.7 mm) between 1-1/2" and 45-1/2" (38.1 mm and 1,156 mm).  
 NOTE: The deflector will be located approximately 3-7/16" (87.3 mm) below the ceiling, with 1" (25.4 mm) upward and 1" (25.4 mm) downward adjustment.

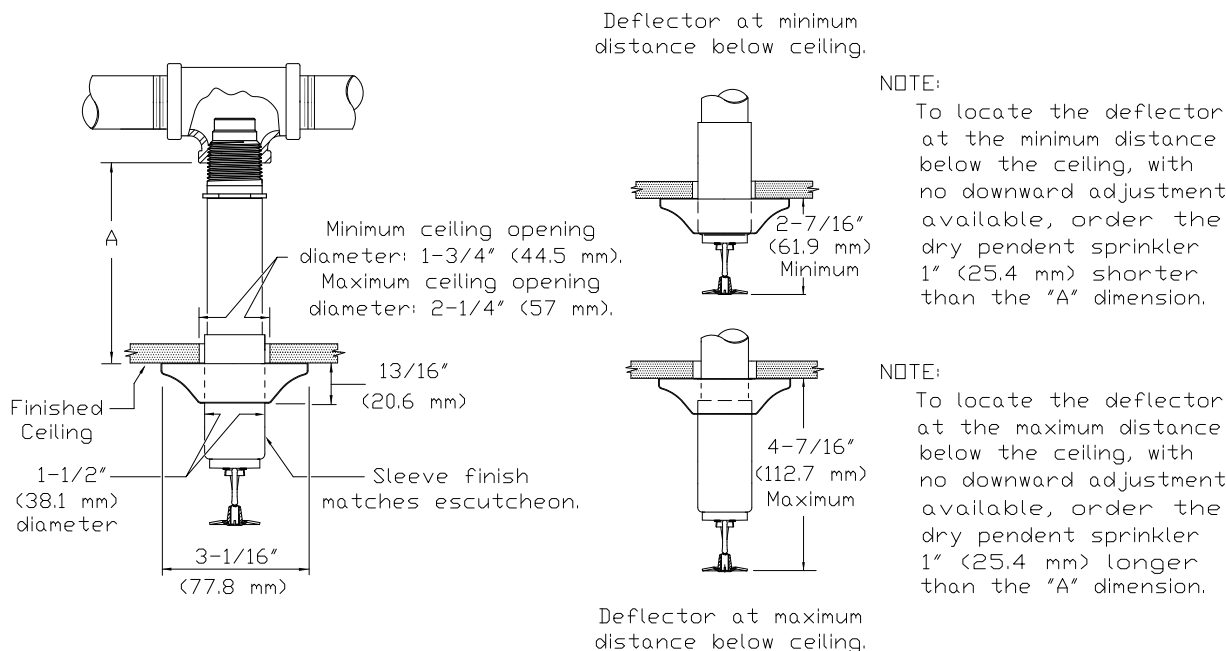


Figure 3: Adjustable Standard Dry Pendent Sprinkler



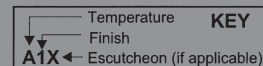
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### Approval Chart 1 (UL)

Quick Response Dry Pendent Sprinklers  
 Maximum 175 PSI (12 bar) WWP



| Sprinkler<br>Base Part No. <sup>1</sup> | SIN   | Style           | Thread Size |       | Nominal K-Factor <sup>2</sup> |                     | Order Length Increment |      | Listings and Approvals <sup>4</sup><br>(Refer also to Design Criteria below.) |                  |     |      |    |    |
|---|-------|-----------------|-------------|-------|-------------------------------|---------------------|------------------------|------|---|------------------|-----|------|----|----|
|   |       |                 | NPT         | BSP   | U.S.                          | metric <sup>3</sup> | Inches                 | mm   | cULus <sup>5</sup>  | NYC <sup>6</sup> | VdS | LPCB | CE | ⚙  |
| 08383U                                  | VK176 | Adjustable      | 1"          | --    | 5.6                           | 80.6                | 1/2"                   | 12.7 | A1, A5  | A1               | --  | --   | -- | -- |
| 16457U                                  |       | Standard        | --          | 25 mm | --                            | 80.6                | 1/2"                   | 12.7 | A1, A5  | --               | --  | --   | -- | -- |
| 08385U                                  | VK180 | Adjustable      | 1"          | --    | 5.6                           | 80.6                | 1/4"                   | 6.35 | B2, B6  | B2               | --  | --   | -- | -- |
| 16453U                                  |       | Recessed        | --          | 25 mm | --                            | 80.6                | 1/4"                   | 6.35 | B2, B6  | --               | --  | --   | -- | -- |
| 08387U                                  | VK172 | Plain<br>Barrel | 1"          | --    | 5.6                           | 80.6                | 1/2"                   | 12.7 | A3  | A4               | --  | --   | -- | -- |
| 16455U                                  |       |                 | --          | 25 mm | --                            | 80.6                | 1/2"                   | 12.7 | A3  | --               | --  | --   | -- | -- |

#### Approved Temperature Ratings

A - 155 °F (68 °C), 175 °F (79°C), 200 °F (93 °C),  
 and 286 °F (141 °C)  
 B - 155 °F (68 °C), 175 °F (79°C), and 200 °F  
 (93 °C)

#### Approved Finishes and "A" Dimensions

- 1 - Chrome or White Polyester<sup>7</sup> sprinkler with a Chrome or White Polyester Sleeve and Escutcheon with "A" dimensions 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm)
- 2 - Chrome or White Polyester<sup>7</sup> with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm)
- 3 - Chrome, Brass, White Polyester<sup>7</sup>, or ENT<sup>7</sup> with "A" dimensions 3" to 47" (76.2 mm to 1,194 mm)
- 4 - Chrome or Brass with "A" dimensions 3" to 47" (76.2 mm to 1,194 mm)
- 5 - ENT<sup>7</sup> sprinkler with an ENT<sup>7</sup> Sleeve and Escutcheon with "A" dimensions 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm)
- 6 - ENT<sup>7</sup> with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm)

#### Footnotes

- <sup>1</sup> Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.
- <sup>2</sup> K-Factor applies for standard lengths ("A" Dimensions indicated above).
- <sup>3</sup> Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.
- <sup>4</sup> This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.
- <sup>5</sup> Listed by Underwriter's Laboratories for use in the U.S. and Canada.
- <sup>6</sup> Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 15.
- <sup>7</sup> cULus Listed as corrosion resistant.

### DESIGN CRITERIA - UL

(Also refer to Approval Chart 1 above.)

**NOTE: When using CPVC fittings with Viking dry sprinklers, use only new Nibco Model 5012-S-BI tees. When selecting other CPVC fittings, contact Viking Technical Services.**

#### cULus Listing Requirements:

Standard Dry Pendent Sprinklers are cULus Listed as indicated in Approval Chart 1 for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Designed for use in Light and Ordinary Hazard occupancies.
- The sprinkler installation and obstruction rules contained in NFPA 13 for standard spray pendent sprinklers must be followed.

**IMPORTANT: Always refer to Bulletin Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to Form F\_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.**



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| Approval Chart 2 (FM)<br>Quick Response Dry Pendent Sprinklers<br>Maximum 175 PSI (12 bar) WWP |       |                     |             |       |                               |                     |                        |      |   |
|--|-------|---------------------|-------------|-------|-------------------------------|---------------------|------------------------|------|---|
| Sprinkler Base Part No. <sup>1</sup>   | SIN   | Style               | Thread Size |       | Nominal K-Factor <sup>2</sup> |                     | Order Length Increment |      | FM Approvals <sup>4</sup><br>(Refer also to Design Criteria below.) |
|  |       |                     | NPT         | BSP   | U.S.                          | metric <sup>3</sup> | Inches                 | mm   |   |
| 08383U   | VK176 | Adjustable Standard | 1"          | --    | 5.6                           | 80.6                | 1/2"                   | 12.7 | A1  |
| 16457U   |       |                     | --          | 25 mm | --                            | 80.6                | 1/2"                   | 12.7 | A1  |
| 08385U   | VK180 | Adjustable Recessed | 1"          | --    | 5.6                           | 80.6                | 1/4"                   | 6.35 | B2  |
| 16453U   |       |                     | --          | 25 mm | --                            | 80.6                | 1/4"                   | 6.35 | B2  |
| 08387U   | VK172 | Plain Barrel        | 1"          | --    | 5.6                           | 80.6                | 1/2"                   | 12.7 | A3  |
| 16455U   |       |                     | --          | 25 mm | --                            | 80.6                | 1/2"                   | 12.7 | A3  |

**Approved Temperature Ratings**  
 A - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 286 °F (141 °C)  
 B - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)

**Approved Finishes and "A" Dimensions**  
 1 - Brass, Chrome, White Polyester, or ENT<sup>5</sup> sprinkler with a Brass, Chrome, White Polyester, or ENT<sup>5</sup> Sleeve and Escutcheon with "A" dimensions 1-1/2" to 45-1/2" (38.1 mm to 1,156 mm)  
 2 - Brass, Chrome, White Polyester, or ENT<sup>5</sup> with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm)  
 3 - Brass, Chrome, White Polyester, or ENT<sup>5</sup> with "A" dimensions 3" to 47" (76.2 mm to 1,194 mm)

**Footnotes**  
<sup>1</sup> Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.  
<sup>2</sup> K-Factor applies for standard lengths ("A" Dimensions indicated above).  
<sup>3</sup> Metric K-Factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.  
<sup>4</sup> This chart shows the FM Approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.  
<sup>5</sup> FM approved as corrosion resistant.

**DESIGN CRITERIA - FM**  
(Also refer to Approval Chart 2 above.)

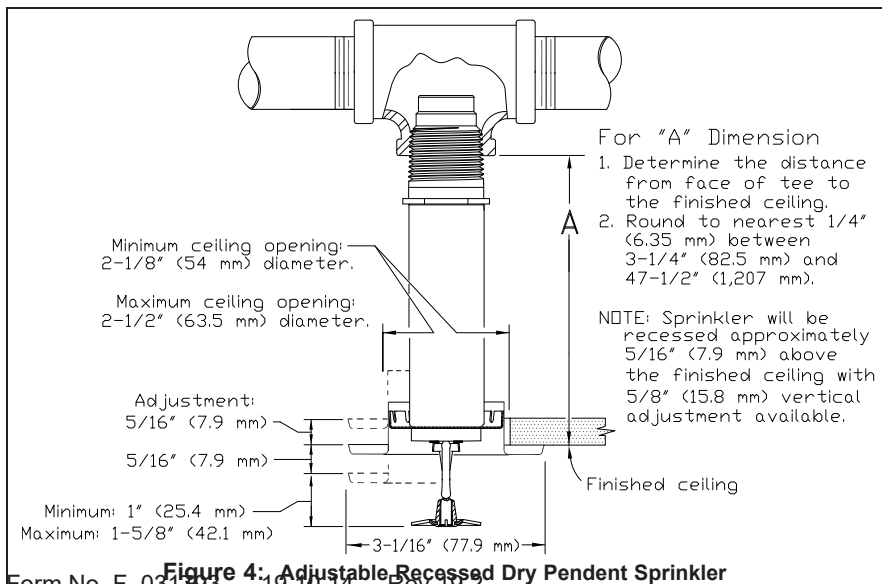
**NOTE: When using CPVC fittings with Viking dry sprinklers, use only new Nibco Model 5012-S-BI tees. When selecting other CPVC fittings, contact Viking Technical Services.**

**FM Approval Requirements:**

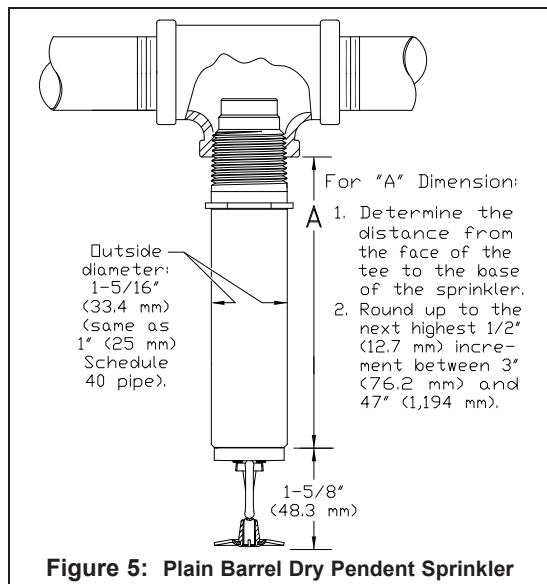
The Dry Pendent Sprinklers in the Approval Chart above are FM Approved as quick response **Non-storage** standard spray sprinklers as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including 2-0) and Technical Advisory Bulletins. FM Global Loss Prevention Data Sheets and Technical Advisory Bulletins contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.

**NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.**

**IMPORTANT: Always refer to Bulletin Form No. F\_091699 - Care and Handling of Sprinklers. Also refer to Form F\_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.**



**Figure 4: Adjustable Recessed Dry Pendent Sprinkler**



**Figure 5: Plain Barrel Dry Pendent Sprinkler**



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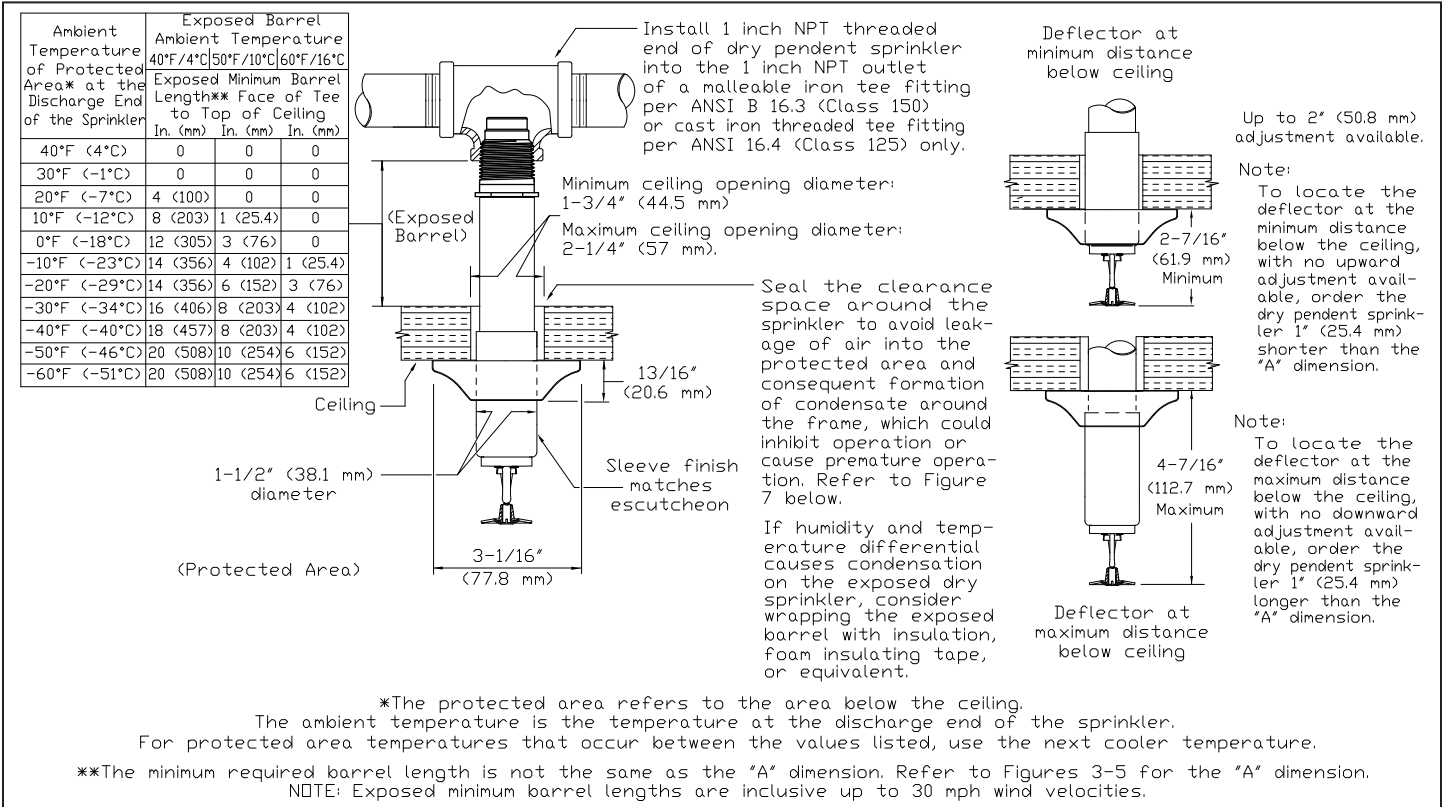


Figure 6: Dry Pendent Sprinkler Required Minimum Barrel Length Based on Ambient Temperature in the Protected Area (Adjustable Standard Dry Pendent Sprinkler is Shown)

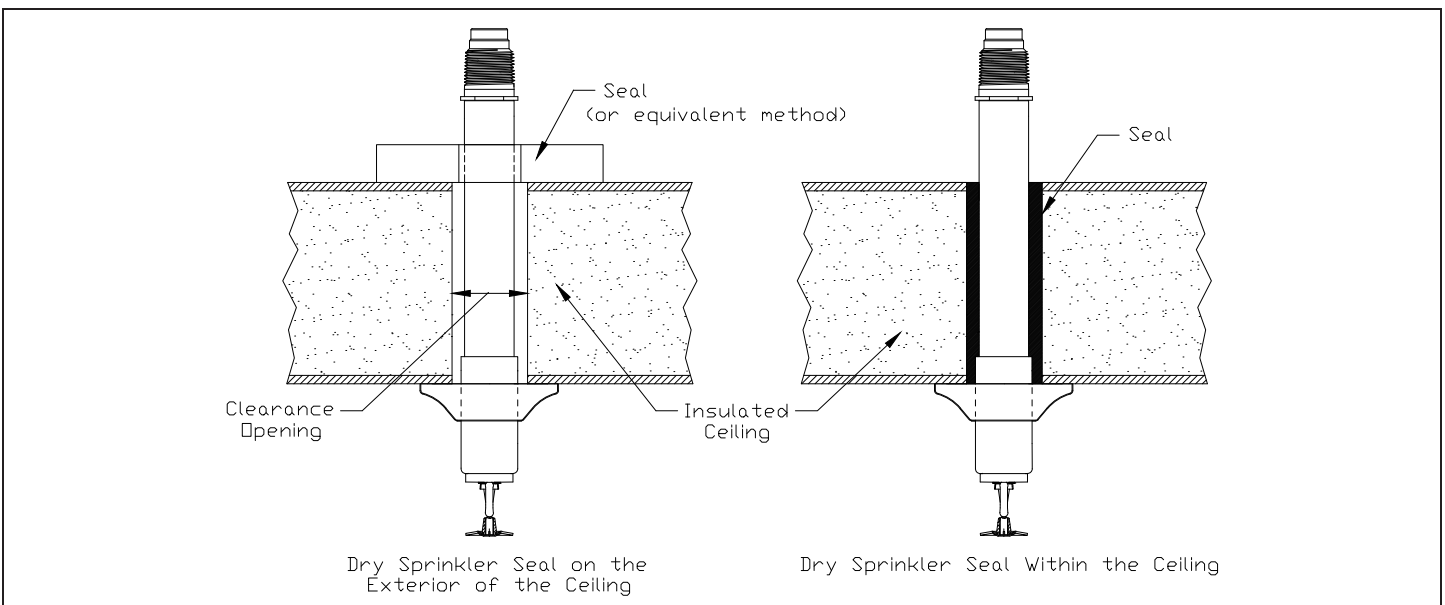


Figure 7: Dry Sprinkler Seal (Adjustable Standard Dry Pendent Sprinkler is Shown)